We claim:

1. A non-invasive spectrometric device for assessing the level of hemoglobin in mammalian tissues comprising (a) wavelength filter means for transmitting or reflecting wavelengths of light; (b) light intensity sensor means arranged and disposed to measure the intensity of the wavelengths transmitted or reflected by the wavelength filter means and generate an electrical signal therefrom, (c) output processing means connected to the light intensity sensor means to receive and process the output therefrom; and (d) display means connected to the output processing means to display the output.

2. The device of claim 1 wherein the light intensity sensor means is arranged and disposed in stacked relation to the wavelength filter means such that wavelengths of light are transmitted through the wavelength filter means into the light intensity sensor means.

3. The device of claim 1 wherein the light intensity sensor means is arranged and disposed in angular relation to the wavelength filter means such that wavelengths of light are reflected from the wavelength filter means into the light intensity sensor means.

4. The device of claim 1 wherein the wavelength filter means comprises at least one pair of planer substrates in parallel-

opposed relation, at least one layer of light-wavelength modulating material disposed between the pair of planer substrates to achieve spectral coverage in the visible light spectrum, and a power source in power-providing communication with the substrate.

5. The device of claim 4 wherein the substrates are electrically conducting substrates.

6. The device of claim 4 wherein the light-wavelength modulating material comprises deformed helix ferroelectric liquid crystals (DH-FLC), electrically tuned to exhibit pre-determined wavelength selection properties.

7. The device of claim 6 wherein the molecules in the layers of the DH-FLC are aligned perpendicular to the surfaces of the planer substrates.

8. The device of claim 5 wherein the power source is in electrical communication with the substrates to create an in-plane electric field.

9. The device of claim 4 wherein the power source is in thermal communication with one of the pair of substrates to create a temperature change in the wavelength modulating material.

10. The device of claim 9 wherein the power source is a transparent resistive heater positioned on the planer exterior surface of one of the pair of substrates.

11. The device of claim 5 wherein the light-wavelength modulating material comprises a layer of holographic polymer dispersed liquid crystals (H-PDLC).

12. The device of claim 11 wherein one layer of H-PDLC is arranged between two parallel-opposed electrically conducting substrate layers so as to form a spatial gradient in the H-PDLC from one edge of the substrate layers to the opposing edge of the substrate layers.

13. The device of claim 11 wherein one layer of H-PDLC is arranged between two parallel-opposed electrically conducting substrate layers and wherein the H-PDLC has an index of refraction variable in response to an applied electric field.

14. The device of claim 11 comprising a stack composed of a plurality of layers of H-PDLC arranged in alternating, superposed, relation to a plurality of substrate layers, wherein the number of substrate layers equals the number of layers of H-PDLC plus one.

15. The device of claim 12 wherein the stack is composed of between two and twenty layers of H-PDLC layers.

16. The device of claim 5 wherein the light-wavelength modulating material comprises at least on layer of cholesteric liquid crystals (CLC).

17. The device of claim 14 forming a stack composed a plurality of CLC layers arranged in alternating, superposed, relation to

a plurality of substrate layers, the plurality of CLC layers having the capacity to reflect light of different, per-determined wavelengths, the stack having a number of substrate layers one greater than the number of CLC layers and wherein the power source produces electrical energy perpendicular to the pitch axis of the CLC layers.

18. The device of claim 15 further comprising a passive optical element disposed in parallel relation between two reflective CLC of opposite-handedness.

19. The device of claim 16, composed of one layer of CLC disposed between two layers of electrically conducting substrate, wherein the one layer of CLC is subjected to a in-plane electric field to produce different pitch sizes as the electric field is increased.

20. The device of claim wherein the light intensity sensor means is selected from the group consisting of an array of CCD and a photodiode.